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10/733,805	12/10/2003	Randy Miller	LAMA122128	8855

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EXAMINER

LEUNG, JENNIFER A

ART UNIT PAPER NUMBER

1764

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/733,805

**Applicant(s)**

MILLER ET AL.

**Examiner**

Jennifer A. Leung

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's amendment submitted on June 12, 2006 has been received and carefully considered. The changes to the specification and drawings are acceptable. Claims 1 and 2 are currently under consideration.

***Priority***

2. Applicant is reminded that a certified copy of application number 2,413,834 filed in Canada on December 10, 2002 has not been submitted, as required by 35 U.S.C. 119(b).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by McMillan (US 2,310,907).

McMillan (FIG. I, II, III; page 3, line 6 to page 4, line 70) discloses an apparatus (i.e., a converter 12) comprising:

a body (i.e., an elongated reaction chamber 13) having an inlet chamber (i.e., the bottom catalyst-free chamber, in direct communication with line 10), a chemical mixing chamber (i.e., the middle portion of the elongated reaction chamber 13, containing the plurality of catalyst containers A-E), and an outlet chamber (i.e., the top catalyst-free chamber, in direct communication with line 27); an inlet (i.e., via line 10) being provided into the inlet chamber; an

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inlet (i.e., via the perforations of support screen 18 in catalyst container E) being provided to permit entry of gases into the chemical mixing chamber; an outlet (i.e., via the perforations of screen 22 in catalyst container A) being provided to permit exit of gases from the chemical mixing chamber to the outlet chamber; an outlet (i.e., via line 27) being provided for removal of gas from the outlet chamber; supports (i.e., the catalyst containers A-E) for supporting chemicals to be reacted (e.g., catalyst 21); and a heat source (i.e., heating jacket 14) to heat the chemical mixing chamber.

In view of the newly added limitations, although the particular chemicals of “potassium nitrite and nitrate, chromic oxide and ferric oxide”, present as “powder mixed with non-reactive binders and compressed to form a compressed solid”, are not specifically disclosed by McMillan, the apparatus still structurally meets the claims because the chemicals have merely been recited as intended use.

Instant claim 1 structurally reads on the apparatus of McMillan.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurooka et al. (JP 61-171998).

Regarding claim 1, Kurooka et al. (FIGs. 1 and 2) discloses an apparatus comprising: a body (i.e., a pressure vessel 1) having an inlet chamber (i.e., hydrogen passage 7), a chemical mixing chamber (i.e., a chamber defined by metal hydride container 9), and an outlet chamber (i.e., hydrogen passage 7); an inlet being provided into the inlet chamber (i.e., via pipe 6); an inlet being provided to permit entry of gases into the chemical mixing chamber (i.e., via opening 10; FIG. 2a); an outlet being provided to permit exit of gases from the chemical mixing chamber to the outlet chamber (i.e., via opening 10, FIG. 2a); an outlet being provided for removal of gas

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from the outlet chamber (i.e., via pipe 6); supports (i.e., heat exchange fins 8) for supporting chemicals (i.e., metal hydride 2); and a heat source to heat the chemical mixing chamber (i.e., heat exchange tube 5, carrying a heating medium).

In view of the newly added limitations, although the particular chemicals of “potassium nitrite and nitrate, chromic oxide and ferric oxide”, present as “powder mixed with non-reactive binders and compressed to form a compressed solid”, are not specifically disclosed by Kurooka, the apparatus still structurally meets the claims because the chemicals have merely been recited as intended use.

Regarding claim 2, the supports 8 are in the form of probes extending from the heat source 5, which shape is inherently adapted for supporting solid chemicals having a lifesaver shape (see FIG. 1, 2).

Instant claims 1 and 2 structurally read on the apparatus of Kurooka et al.

### ***Response to Arguments***

5. Applicant's arguments filed June 12, 2006 have been fully considered but they are not persuasive. At the bottom of page 7, Applicants argue,

“... Claim 1 has been amended to indicate that the chemicals that are supports are “potassium nitrite and nitrate, chromic oxide and ferric oxide” and that they are “powder mixed with non-reactive binders and compressed to form a compressed solid”. McMillan does not teach this, nor could McMillan be used in this manner...”

While the Examiner agrees with Applicant that McMillan does not disclose the use of chemicals comprising potassium nitrite and nitrate, chromic oxide and ferric oxide, the Examiner maintains that the apparatus of McMillan structurally meets the claims because the chemicals, as currently recited in the claims, are merely set forth as intended use. Claim 1 (lines 8-9) recites,

“supports for supporting chemicals of potassium nitrite and nitrate, chromic oxide and ferric oxide...” (with emphasis added).

The term “for” sets forth that the “supports” need only to be structurally capable of performing the intended use of “supporting chemicals”. The particular “chemicals”, however, are not considered part of the apparatus. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

***Allowable Subject Matter***

6. The following claims drafted by the Examiner and considered to distinguish patentably over the art of record in this application, are presented to applicant for consideration:

Claim 1. (Currently amended) A nitric oxide gas generator, comprising:

a body having a dilution inlet chamber, a chemical mixing chamber, and a dilution outlet chamber, a dilution inlet for diluent gases being provided into the dilution inlet chamber, an inlet being provided to permit entry of the diluent gases from the dilution inlet chamber into the chemical mixing chamber, an outlet being provided to permit the exit of diluted nitric oxide gas from the chemical mixing chamber to the dilution outlet chamber, a dilution outlet being provided for removal of diluted nitric oxide gas from the dilution outlet chamber;

supports [[for]] supporting chemicals of potassium nitrite and nitrate, chromic oxide and ferric oxide to be reacted to produce nitric oxide gas, the [[supporting]] chemicals being powder mixed with non-reactive binders and compressed to form a

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compressed solid; and

a heat source to heat the chemical mixing chamber in which the chemicals are mixed to initiate a chemical reaction that produces nitric oxide gas.

Claim 2. (Previously presented) The nitric oxide generator as defined in Claim 1, wherein the supports are in the form of probes extending from the heat source and the compressed solid has a lifesaver shape adapted for placement on one of the probes.

The proposed amendment to claim 1 clarifies the structural relationship of the inlet to the mixing chamber with respect to the other elements of the apparatus. In addition, the proposed amendment calls for a positive recitation of the chemicals (i.e., by deleting “for”). The prior art does not disclose or adequately teach the instantly claimed nitric oxide generator having the claimed construction and containing, in particular, the chemicals of potassium nitrite and nitrate, chromic oxide and ferric oxide on supports, said chemicals being powder mixed with non-reactive binders and compressed to form a compressed solid.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

\* \* \*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung  
August 9, 2006 *JAL*

  
ALEXA DOROSHENK NECKEL  
PRIMARY EXAMINER